

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

SUBJECT: Request for Funding for Removal Action and Exemption from \$2 Million Statutory Limit for a Removal Action at the Elkton Farms Firehole Site, Elkton, Cecil County, Maryland

FROM: Charles E. Fitzsimmons, On-Scene Coordinator
Removal Response Section (3HS31)

TO: Abraham Ferdas, Director
Hazardous Site Cleanup Division (3HS00)

I. Purpose

The purpose of this Action Memorandum is to request funding for a Removal Action at the Elkton Farms Firehole Site (Site) located at 183 Zeitler Rd., Elkton, Cecil County, Maryland (039° 38' north latitude and 75° 53' west longitude) and to request an exemption from the \$2 Million statutory limitation. A Removal Site Assessment conducted pursuant to Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) found a release of hazardous substances primarily, Munitions and Explosives of Concern (MEC) as defined by the US Army Corps of Engineers (USACE) Technical Guidance document dated March 2005. The MEC include Discarded Military Munitions (DMM), Unexploded Ordnance (UXO) and Munitions Constituents (MC) tri-nitrotoluene (TNT) in high enough concentrations to pose an explosive hazard at the Site posing an imminent and substantial threat to human health, welfare and the environment. MEC as defined under 10 U.S.C. 2710 (e) (2) and 10 U.S.C. 2710 (e) (9) is a solid and hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) henceforth a CERCLA hazardous substance, pollutant or contaminant. Based upon information obtained from the Removal Site Evaluation (RSE) and a review of that information by the On-Scene Coordinator (OSC), CERCLA funding is necessary to conduct a Removal Action to prevent further release of CERCLA hazardous substances from the Site and to protect public health welfare and the environment. Funding in the amount of \$4,735,000.00 of which \$2,750,000.00 is from the Regional Removal Allowance, is necessary to mitigate the threats identified in this Action Memorandum.

II. Site Conditions

The Elkton Firehole Site has not been completely geophysically surveyed/identified yet. The site itself is as large as 150 acres and is flat with a winter wheat crop due to be harvested in July, 2005. The wheat is as high as 4 feet. Only 55 acres of the overall Site has been geophysically surveyed. Presently this is the area of concern. Results from the START geophysical indicate two fireholes and scattered metal debris (DMM) throughout the 55 acre area of concern. This area of concern is located around the fireholes and is the western third of the Site. There is no historical data to show where the DMM attenuates. It very likely could be scattered beyond the aforementioned area of concern. As a result of funding issues, the START geophysical survey was terminated at 55 acres. Therefore additional geophysical survey work will need to be done on the remaining 100 acres.

Located along the south western portion of the portion of the site, adjacent to the fireholes, are abandoned concrete and steel structures. This old facility is the Morton Thiokol Rocket Recovery Area (RRA). Neighboring Morton Thiokol utilized this facility along with Boeing Inc. to test rocket deployment in the 1960s. The remnants include a launch pad and support facilities. The removal of these structures will be conducted by Morton Thiokol under the direction of MDE. This work is anticipated to be initiated and completed during July and August, 2005.

As described above, the site is as large as 150 acres and is wide open farmland bounded by streams and woodlands. As a result, it is too large for the erection of security fencing. Therefore, in March, 2005 the OSC posted warning signs alerting trespassers and nearby residents of the Superfund nature of the site and to provide a phone number for questions. It also appears that the portions of the site are utilized for hunting and shooting practice. Numerous buck shot shells litter an area adjacent to the RRA area. Therefore commencing in June, 2005 the OSC contracted for security service to alert nonessential personnel of the hazards of the site and provide another level of protection to the general public.

A. Site Description

The Elkton Farm Firehole site is located two miles northwest of Elkton, Maryland and occupies approximately 100 acres of the actual 400-acre Elkton Farm property (Figure 1). Throughout most of its history, Elkton Farm site has been used as a livestock farm with much of the surrounding fields Elkton Farm. During the period between the end of World War II and the 1970s, hazardous material was stored and/or disposed of on the farm. Four hazardous waste disposal areas have been identified:

- Unit One, abandoned drums, was addressed by a CERCLA Region III, Removal Action in the early 1990's.
- Unit Two, is the site of the historic "Firehole" where waste explosives (DMM) were disposed through open burning. This action proposes to address this unit.
- Unit Three is the site of a Morton Thiokol rocket test/cleaning center which is being addressed by the Maryland Department of the Environment (MDE).

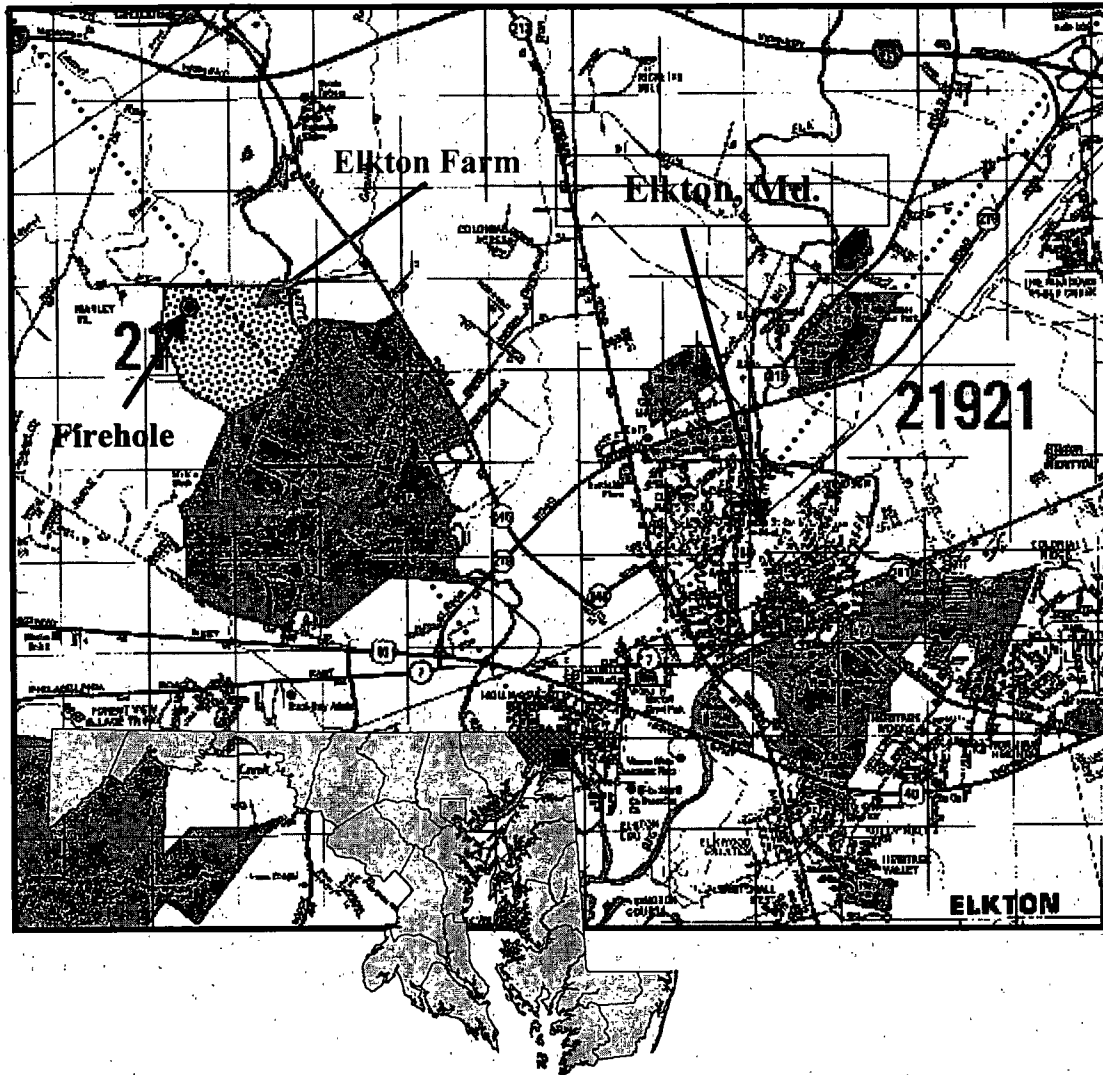
- Unit Four is a parcel of property adjacent to the G. E. Railcar property and is the potential source of a chlorinated solvent plume. This has been addressed by a separate investigation.

The overall farm itself consists of approximately 400 acres and is situated in a rural^{ORIGINAL} setting just north of Triumph Industrial Park. The farm is currently owned by MARVA Limited Partnership. The property has historically been a working farm. For a brief period in the mid-1940s to early 1950s the property was impacted by military operations. MARVA Limited Partnership, the current owner, leases the property to a commercial farming operation that continues to rotate several seasonal crops through the Elkton Farm's fields.

This action proposes to address Unit Two, the Firehole portion of the property. The Firehole parcel is located on the USGS Bayview/Newark West quadrangles at approximately 39°38' north latitude and 75°53' west longitude and has a Maryland grid coordinate of 655,000 N and 1,117,500 E. The site consists of approximately 100 acres and is bounded on the west by Laurel Run, to the north by Zeitler Road, and to the East by Little Elk Creek. A gravel access road bisects the western quadrant of the site. The Firehole is in this western quadrant west of the gravel road. Land use surrounding the site is primarily agricultural/residential, with an area of medium to heavy industry property to the southeast across Little Elk Creek.

Unit Two is the World War II era waste ordnance combustion pit(s) known as the "Firehole," which was used by TEI, during the 1940s. The firehole was defined as the area for the disposal of waste explosives materials, or currently labeled by the DOD today as DMM. The DMM at this site generated by the operations at TEI. TEI reportedly collected waste material from the manufacture of explosive ordnance and placed it in drums. This accumulated waste was kept wetted with alcohol or ether to prevent spontaneous combustion, and then carried to a shallow pit off Zeitler Road, spread thinly, and allowed to burn. Plant personnel monitored the burn until the waste explosive was consumed. Photographs in the TEI newsletter from the 1940s show the operation of the Firehole burn pit. Ordinance-related debris was observed on the ground surface during the sampling event. For a brief period of approximately four months during the mid 1940s, the Department of Defense operated the TEI facility and performed the operations of munitions manufacture and onsite burn/disposal.

Figure 1 Site Map



B. Quantities and Types of Substances Present

As a result of the RSE and a thorough review of available site historical data, Table 1 depicts the total specific munitions/explosive material that were produced at the TEI facility during the 1940s:



TABLE 1

Triumph (TEI) Explosive Produced

ORIGINAL

- 22,059,000 40-mm shells
- 65,000 rifle grenades
- 1,345,000 float lights
- 3,097,000 fuzes
- 12 million aircraft signals
- 100 million detonators
- 121 million primer caps
- 647,000 lbs of pentolite
- 2,383,000 incendiary bombs
- 355,000 hand grenades

For purposes of this action assume one percent of the above items as having been considered waste or off spec and subsequently discarded as DMM with the fireholes and surrounding blast zones.

After being identified as a potentially responsible party by MDE, the U.S. Army Corps of Engineers contracted an investigation of the site operations and ownership history of the Elkton, Maryland site of Triumph Explosives, Inc. (TEI). In February 1992, the final report for this project was prepared by TechLaw, Inc. This report identified an area on the current Elkton Farm as the Firehole. The total quantity of hazardous waste disposed of in the Firehole was unknown. There was no estimate of fill thickness for the Firehole.

In July 2002 the MDE initiated a geophysical survey of Unit 2, firehole area. MDE's contractor NAEVA Geophysics, Inc. (NAEVA) reviewed site historical information, aerial photographs, performed site reconnaissance and performed an extensive geophysical survey utilizing EM-31 magnetometer technology. NAEVA concluded that all historical information indicates there were burnpits used by TEI during the 1940s to burn off thinly spread layers of propellants and fuels. Three distinct anomalies in the Unit 2 area were determined. NAEVA recommended another advanced geophysical survey to further delineate and differentiate these anomalies with underground storage tanks and/or underground utilities.

On September 15, 2004 MDE issued its Formerly Used Defense Site (FUDS) Inspection Report of the Elkton Farms Firehole Site. The purpose of the FUDS Inspection is to assess the actual and potential release of hazardous substances from the site by way of groundwater, surface water, soil exposure and air pathways on sites that were owned and/or operated by the Federal Government. The scope of the FUDS Inspection included

reviewing the available file information, site reconnaissance and sampling under the U.S. EPA Contract Laboratory Program (CLP). This SI report concluded the following: "A toxicological evaluation was prepared for the Firehole site, assuming a residential future use scenario for the site. Risk estimates exceeded EPA and MDE recommended levels for the child resident population for incidental ingestion of and dermal contact with ^{ORIGINAL} surface soils, with the risk drivers of potential additive effects, chromium, and arsenic. Concentrations detected exceeded the EPA and MDE recommended levels for ingestion of and dermal contact with subsurface soil for the child resident, with the risk drivers of potential additive effects and chromium. Lead was detected in S14 at 1480 mg/kg, which may pose a threat to sensitive populations and the environment. Risk estimates for the incidental ingestion of and dermal contact with groundwater exceeded MDE and EPA recommended levels for all residential populations, with trichloroethene as the risk driver.

Samples S13 and S14 were collected in the area defined by MDE's geophysical survey (Appendix C) as the most likely area of the Firehole. Sample analysis showed elevated concentrations of lead, mercury, and arsenic as well as TCE and Aroclor 1254, and the nitroaromatic compound TNT and associated daughter products. The groundwater collected from monitoring well MW2, which is hydraulically downgradient of S13 and S14, was contaminated with significant concentrations of TCE. Subsurface soil samples from the Firehole area were not collected because of refusal at less than 18 inches. Sample S/SS 6 obtained from the vicinity of the TMRA and sample S8 midway between the Firehole and TMRA also exhibited elevated levels of several explosive compounds

According to the current owners of the property, the Elkton Farm property is for sale. It is currently leased to farmers in the area for crops; however, in all likelihood, the entire 300-acre farm will be developed for residential use in the future, rather than continued use for farming. The presence of TNT and daughter products, elevated concentrations of metals, highly volatile TCE detected in surface soils and groundwater and the presence of ordnance-related debris easily observable on the ground surface all suggest that further investigation is necessary in order to fully identify any human health risks to future residential populations."

As a result of the aforementioned SI report the EPA Region III Removal Branch was requested by the EPA, Brownfields and Site Assessment Section, Project Manager to perform a Removal Site Evaluation (RSE) of the DMM and any other imminent and/or explosive hazard for determination of a Superfund Time Critical or Emergency Removal Action. As part of this RSE, the EPA and its START contractor (Tetra Tech Inc.), at the direction of the FOSC, performed a geophysical survey of the Firehole Site including the 32 acre parcel previously identified by the MDE above. This EM-61 survey was conducted in May, 2005. The purpose of the survey was to verify the existence of the Firehole pit(s) and to determine both the depth and areal extent (vertical and horizontal) of the DMM release. Results from this survey revealed the existence of the firehole(s) but more importantly expanded the site from a 32 acre parcel to at least a 55 acre area of

concern. Over the past 50 years this property has been farmed by the same farmer under a lease agreement with the property owner. He has cultivated two or three different types of agricultural crops per year including wheat, corn etc. This tilling and dragging process appears to have scattered the DMM at the surface throughout the 100 acre property. The geophysical survey was terminated at 55 acres due to funding issues but it can be assumed that most of the property will have to be addressed for DMM, at the surface, as part of this action.

In December 2004 and January 2005 MDE performed a followup soil sampling event specific to nitroaromatic compounds at the firehole site. Results returned in February 2005 indicated elevated levels of TNT at one location close to the surface. This sample, S7, revealed 1,298ppm (>1%) and exceeds EPA Region III Risk Based Concentrations (RBC) for both residential end use. The RBC standard is 21 ppm. Presently the Firehole site is used for agricultural purposes but is proposed for residential development.

C. National Priorities List Status

This site is not presently on the National Priorities List (NPL). The Preliminary Assessment/Site Inspection (PA/SI) inspection is currently under review by MDE and EPA.

D. State and Local Authorities' Roles

The Elkton Firehole site is part of a larger project called the Little Elk Creek One Cleanup Program. The purpose of the project is to develop a collaborative effort among EPA programs, the State, and local officials in the cleanup and revitalization of the Little Elk Creek, Elkton, Md. area. The Maryland Department of the Environment (MDE) is the overall lead of the project and EPA has provided support to them when requested.

In March of 2004, Windsor Management Corporation, the prospective purchaser of the Elkton Farm, which includes the firehole property, verbally agreed to enter the State Voluntary Cleanup Program (VCP). The MDE explained to Windsor that they would be responsible for any residual contamination at the firehole site after EPA had completed their removal. This residual contamination includes but is not limited to scattered munitions debris, contaminated soils and contaminated groundwater. At this point, Windsor has not yet submitted a formal application to enter the VCP but have verbally acknowledged high interest.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

Section 300.415 of the NCP lists the factors to be considered in determining the appropriateness of response activities. Paragraphs (B)(2)(i), (ii), (iv), (v) and (vii) apply to the need for response at the Elkton Farms Firehole Site as follows:

300.415(b)(2)(i) *“Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants”*

On May 28, 2004 the USACE, Ordnance and Explosive Safety Specialists, Baltimore District, Md., at the request of MDE, performed a site visit to assess unexploded ordnance hazards. The following Resume of Site Visit document dated June 06, 2004 concluded “MEC related items were discovered on the surface of the property visited.

Approximately 8 acres were covered in the site visit walkover. Crops are growing on the site. The site is reported to be farmed year round. What appeared to be projectile nose and tail fuzes, and parts and pieces of pistol flares were observed at the site. There were several areas observed that had no or very little crop growth in relation to the rest of the crop in the area.” Recommendations from this site visit were “Site activities should include a unexploded ordnance (UXO) team providing UXO Safety Support as a minimum. Intrusive activities should provide for on-site disposal of UXO items which are deemed too hazardous to transport over public roadways.”

On June 29, 2004 the USACE Baltimore District issued a Risk Assessment Code Score (RAC) for the Site. The RAC score is utilized by the USACE to prioritize response actions at FUDs sites. The RAC score for this site was 1(II-A). This score depicted the evaluation to be a high risk with a severity category of critical. This RAC score requires execution of a project response action. The narrative portion of this document revealed “The Navy paid for the construction of over 500 buildings to be used by the contractor TEI for the manufacture of ordnance (40mm shells) and other ordnance related products. A walkover was conducted in the suspected area of the former firehole on 28 May 2004. Numerous suspect MM/MEC related items were observed during the site visit.”

At the request of the EPA Site Assessment Manager (SAM) and in coordination with the FOOSC, the Agency for Toxic Substances and Disease Registry (ATSDR) performed a health consult focusing on the potential for uptake of nitrosamine compounds by plants. ATSDR issued its consult dated 06/01/05. According to this report “ATSDR does not expect that chemical concentrations detected in the surface soil collected from the Firehole portion of the site will pose a public health concern for adults or children residing on the site in the future, if appropriate measures are taken to prevent regular contact with the hot spots of contamination identified. Examples of the hot spots of contamination include the TNT contamination at S7 from the March 2005 sampling event, and the

metals contamination at S2 from the December 2004/January 2005 sampling event. This is particularly true of the areas of highest contamination are not used as residential areas or areas where children would regularly frequent."

ATSDR overall concludes "ATSDR does not expect adverse human health effects from consumption of crops grown at this site; Because site-related contamination was documented in ground water samples from this site, drinking water supply options for the proposed residential development will need to be carefully evaluated and appropriate treatment implemented, as needed; ATSDR does not expect that chemical concentrations in surface soil will pose a public health concern for adults or children residing on the site in the future, if appropriate measures are taken to prevent regular contact with the hot spots of contamination identified in the various sampling investigations of this site; Because there is a plume of TCE-contaminated groundwater at this site, and the depth to groundwater is expected to be ~20 feet, this pathway will need to be evaluated further if development plans proceed at this site."

300.415(b)(2)(ii) *"Actual or potential contamination of drinking water supplies or sensitive ecosystems."*

In May 2003, MDE collected five groundwater samples from site monitoring wells and analyzed them for total and dissolved metals, VOCs, SVOCs, pesticides and PCBs, nitroaromatic compounds, and perchlorates. MDE also collected a water sample from a domestic well at this time to evaluate background groundwater conditions.

- Health-based screening levels for two VOCs were exceeded in the two samples from the onsite groundwater monitoring well MW-2; trichloroethylene (TCE) was detected at 190 ug/L and 170 ug/L, and 1,1,2-trichloroethene was detected at 5 ug/L.
- A trace level (below a health-based screening value) of 4-amino-2,6-dinitrotoluene (.015 ug/L) was also detected in one of the two samples from MW-2.
- Levels of arsenic, lead, and manganese exceeded health-based screening values in the total metals analysis of a few of the groundwater samples. The highest level of total manganese (1,250 ug/L) was detected in the background monitoring well sample (MW-1). Furthermore, the concentration of this metal in MW-1 was reduced below health-based screening levels to 221 ug/L in the dissolved metals analysis. Arsenic was detected at approximately 6 ug/L in MW-3 and below the detection limit in the remaining total metals analyses; it was not present in any of the dissolved analyses. Lead was detected from 11 – 28.5 ug/L in the total analyses, with the highest level found in the background monitoring well sample MW-1, and again was not detected in any of the dissolved metals analyses.

- No perchlorates were detected in any of the groundwater samples.

Presently no drinking water source is impacted by these concentrations. However there is the potential for drinking water to be impacted as a result of the proposed residential development. This potential will be addressed by MDE under their long term Voluntary Cleanup Program for this site. This will not be addressed under this proposed action.

300.415(b)(2)(iv) *"High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate."*

According to the MDE, USEPA-START contractor, and the USACE, the Elkton Farms site is scattered with potentially thousands of unexploded DMM. Referencing both the USACE Risk Action Code (RAC) Summary Document dated June, 2004 and EPA START RAC Summary document dated May 2005 both rated this site as Category I. Category I requires immediate response by the DOD Military Munitions Response Program (MMRP). The MMRP requires that an Inventory Project Report (INPR) be completed for sites involving DOD munitions. An INPR was performed for the neighboring Triumph Explosives Site, which is where the munitions found at the Firehole were manufactured in the 1940s. This INPR was concluded via report dated August, 1991. The document revealed that "Prior to October 1942, the Triumph Explosives facility was a privately owned manufacturing facility used to produce fireworks and munitions for domestic and foreign use. The facility produced 40 mm ammunition and TNT for the US Navy beginning in 1935. In 1938 the facility began producing TNT, high explosive incendiary devices, rifle grenades, flares, and other explosives for the US Army. The facility also produced TNT and assembled 81mm mortar shells for the Government of Finland, produced pentolite for Great Britain, airplane flares for France and tank mines for the Netherlands." Based on this historical information there is the potential for these DMM to be within the Firehole site in addition to the DMM items delineated in Table 1 above.

300.415 (B)(2)(v) *"Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released"*

The Elkton Farm property lays at the confluence of Little Elk Creek with Laurel Run. Natural drainage on the site is in a generalized north to south direction. There is a slight drainage divide on the property which directs surface runoff to either Laurel Run or Little Elk Creek. Surface water infiltrates the soil to groundwater, or is discharged via overland flow to Laurel Run or Little Elk Creek. Laurel Run discharges into Little Elk Creek which flows southward into Big Elk Creek and eventually to the Chesapeake Bay.

The farthest upstream probable point of entry for the surface water route originates at the on-site drainage ditch on the Zeitler Road border of the site. The drainage ditch travels west for approximately 500 feet before emptying into Laurel Run, a perennial freshwater stream and a fishery. Laurel Run flows 0.625 miles to its confluence with Little Elk Creek. The area of the confluence of Laurel Run and Little Elk Creek is classified as Palustrine Aquatic Bed wetlands. Little Elk Creek flows south southeast for approximately 4.0 miles before emptying into the Big Elk Creek. Big Elk Creek flows approximately 2.25 miles to the point where it empties into Elk River. Elk River flows approximately 12.0 miles to its confluence with the Chesapeake Bay. The 15-mile surface migration pathway ends in the Elk River three miles from the confluence of Elk River with the Chesapeake Bay. The Elk River is classified as Estuarine intertidal wetlands and is a fishery.

Washout is evident on the site. Numerous metal objects representing fuses, shells, detonators are visible in the site drainage ditches throughout the site. Adverse weather conditions including heavy precipitation potentially can carry these objects towards Laurel Run and Little Elk creek. These surface waters will be geophysically surveyed as part of this proposed time critical removal looking for washed out metal DMM objects.

300.415(b)(2)(vii) *"The availability of other appropriate federal or state response mechanisms to respond to the release."*

MDE completed a Preliminary Assessment/Site Inspection (PA/SI) of the Elkton Farm Thiokol Motor Recovery Area (RRA) under a cooperative agreement with EPA Region III in September 2004. It was essentially during this PA/SI that the Firehole Area Site was initially located. In February, 2005 MDE initiated a Formerly Used Defense Site (FUDS) Inspection of the Elkton Firehole Site. The scope of the FUDS Inspection included reviewing the available file information, site reconnaissance and sampling under the U.S. EPA Contract Laboratory Program (CLP). According to the draft FUDS Inspection report by MDE "The total quantity of hazardous waste disposed of in the Firehole is unknown. There is no estimate of fill thickness for the Firehole. A geophysical survey conducted for MDE by NAEVA Geophysics, Inc. (NAEVA) indicated several distinct anomalies on the portion of the property east of Laurel Run and south of Zeitler Road. Observations indicate that the Firehole is not one discrete area but rather a series of burn pits located across the property in an approximate 32-acre area." As a result of these findings the MDE referred this site to EPA Region III Site Assessment Manager (SAM). The SAM requested the EPA Region III Response Program to perform a Removal Site Evaluation. (RSE). There are no other state or federal mechanisms available to perform this Superfund Time Critical Removal Action.

The US ARMY Defense Environmental Restoration Program (DERP) was established to perform removal actions at FUDS sites. Under the DERP program the Military Munitions Response Program (MMRP) was initiated to address non-operational range lands that are suspected to contain UXO, DMM or MC contamination. In order for this site to be eligible for MMRP emergency funding for non range sites, the US ACE would have to determine the site to be a FUDS site with a high RAC score or as the only responsible party identified at a superfund site where UXO, DMM or MC is the threat. Presently this site is under evaluation by the USACE with the final INPR document expected later in 2005.

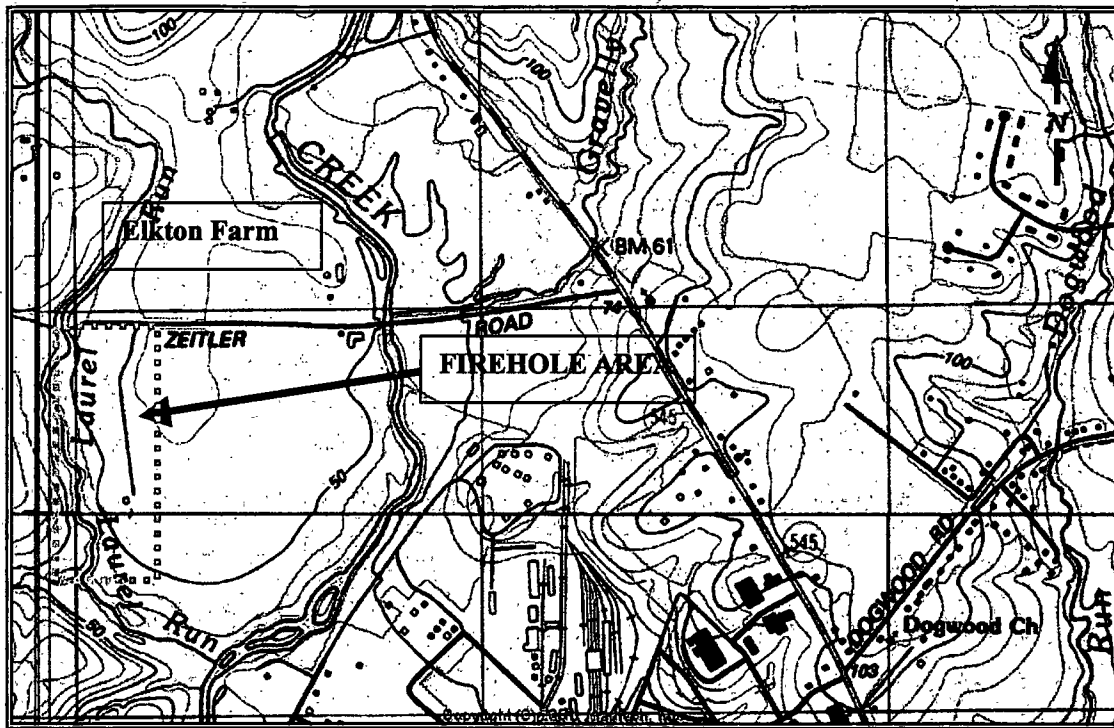
IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response actions outlined in this funding request, may present an imminent and substantial endangerment to the public health, welfare, or the environment.

V. PROPOSED ACTIONS AND COSTS

The Removal Action proposed for the Site is designed to mitigate the imminent threat by removing the DMM and limited/discreet TNT contamination in the soil at the Site. Presently the site is characterized as a 55 acre plot of farmland located to the south of Zeitler Rd., east of Laurel Run Creek and to the west of Little Elk Creek in Elkton, Cecil County, Md. Refer to Figure 2. The DMM are located in two distinct fireholes at depths ranging from the surface to approximately 8 feet. The DMM are also scattered throughout the surface soils on the site. The geophysical survey performed by START contractor revealed numerous locations/anomalies of potential DMM and different types of DMM such as fuses, 40mm and 20mm casings. A large number of these DMM can be readily seen while walking thru the site.

Figure 2



Presently the site is overgrown with winter wheat at a height of 3 feet. This provides for excellent ground cover and runoff control but will have to be removed. Based on the geophysical survey report at least 55 acres of this flat farmland will be gridded into 200 x 200 foot squares. Each grid will receive a thorough inspection and surficial soil removal to a large sieve for removal of all metal items. The items will be individually sorted based on size and potential for explosion. The larger items will be temporarily staged behind sandbag blast walls or within a magazine. The smaller items can be run thru a large industrial shredder for demilitarization and residual disposal. The OSC with assistance from the USACE and their DMM/UXO experienced contractor will perform this action. This activity will be performed under a strict Health and Safety Plan with emphasis towards worker protection and experienced UXO professionals. The USACE will be responsible for ensuring that the site is clean of DMM.

As this activity is ongoing the OSC and START contractor will initiate a sampling event to define the extent of TNT contamination in surface soils in the vicinity of S7. It is not anticipated that this contamination is widespread. MDE results have indicated it to be a discreet area not larger than a 50 x 50 foot area near the Morton Thiokol Rocket Recovery Area. Soil removal and offsite disposal will be the responsibility of the USACE under the IAG.

Based on the START geophysical report there are at least two fireholes estimated to be 50 by 25 feet and up to 8 foot deep. These holes will be addressed by the USACE in the same manner described above. Track hoes with blast shields will unearth the metal and soil and run the material thru a sieve mechanism. The larger items will be staged behind blast walls and the smaller less explosive items will be shredded.

A. Proposed Actions

1. Mobilize/demobilize personnel and equipment;
2. Provide Site security by erecting temporary banner fencing and providing a security guard during non-working hours to protect equipment;
3. Provide erosion, sedimentation and storm water control to minimize release of DMM from the Site;
4. Characterize the extent and depth of TNT contamination at the S7 sample area on the site;
5. Characterize the extent and depth of additional DMM beyond the 55 acres (potentially up to 150 acres) already assessed utilizing geophysical survey equipment and UXO specialists;
5. Excavate, stage and sieve soils laden with DMM on a pre designated grid by grid basis;
6. Stage DMM within specially designed blast/sandbag walls or prestaged magazines;
7. Perform onsite demilitarization of all DMM by appropriate means according to the specific DMM;
8. Typical treatment method may include crushing of the smaller DMM and vent and burn operations of the larger;
9. Excavation of limited quantity of TNT contaminated soils and transport off site for disposal;
10. Conduct Site restoration as determined appropriate by the OSC and revegetation to prevent erosion of areas soils disturbed by Removal activities;
11. Coordinate with State and Local authorities on removal and post-removal activities and conditions;
12. Demobilization of personnel and equipment.

B. Contribution To Remedial Performance

The Site has not been proposed for the NPL, therefore there are no Remedial Actions planned for the Site at this time. However, the proposed Removal Action is consistent with Superfund cleanup policy that applies to both Remedial and Removal sites and will contribute to and not impede future Remedial action and/or MDE voluntary cleanup procedures, at the Site.

C. Compliance With ARARs

The proposed Removal Action will comply with Applicable or Relevant and Appropriate Requirements (ARARs), to the extent practicable considering the exigencies of the situation. The OSC intends to comply with all relevant federal and state laws relative to proper transport and disposal of hazardous wastes and site health and safety.

D. Estimated Costs

Due to the nature and volume of the hazardous substances (explosive DMM and TNT contaminated soils) found at the Site, the OSC has initiated discussions with the US Army Corps of Engineers (USACE), Baltimore District for assistance. Under an Interagency Agreement between the EPA Region III and the USACE, the OSC will enlist the technical (EOD) support and engineering expertise with respect to project management and utilization of the USACE contractor in the safe handling, onsite demilitarization, transportation (if required) and final clearance of the site for return to reuse as either a farmland or as a residential development area as is currently proposed.

The OSC with assistance from the START contractor and MDE will perform onsite oversight of the USACE. In addition the OSC will complete the characterization of the TNT laden soils and the determination of whether DMM items are located outside the 55 acre area of concern. This will involve additional geophysical survey work to be performed by START.

I.Extramural Costs

A. Regional Removal Allowance Cost:

IAG with USACE/Total Cleanup Contractor Costs: (Includes DMM/UXO contractor, excavation, transport, disposal, Onsite DMM handling, etc)	\$2,500,000.00
IAG with USACE/Project Management Costs: (Admin.,MEC Safety,QA support)	\$250,000.00
Subtotal Regional Removal Allowance Cost:	\$2,750,000.00

B. Other Extramural Costs Not Funded from the Regional Allowance:

Total START, including multiplier costs: (geophysical surveying, sampling and oversight)	\$ 250,000.00
Total CLP	\$ 50,000.00

Subtotal	\$ 300,000.00	
Subtotal, Extramural Costs	\$3,050,000.00	ORIGINAL
Extramural Costs Contingency	\$ 600,000.00	
TOTAL, EXTRAMURAL CEILING	\$ 3,650,000.00	

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Without removal of the explosive discarded military munitions which are described in this Action Memorandum, there is the potential for one of these devices to seriously injure a site trespasser, farmer or resident in the area. There is the potential for washout of these munitions into nearby Laurel Run Creek or Little Elk Creek creating a scenario where nearby children could come into contact with them. In addition new proposed development of single family homes on this site and the adjacent farmland would be precluded.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues pertaining to the Elkton Farms Firehole Site.

IX. ENFORCEMENT STATUS

The EPA Region III Office of Enforcement has been provided with all background information relative to this site (see attached Confidential Enforcement Addendum). The total EPA costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated to be \$:¹

Direct Extramural Costs:	\$3,650,000.00
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¹Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of Site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgement interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

Direct Intramural Costs:	\$100,000.00
Indirect Costs:	\$985,000.00
Total Estimated Cost:	\$4,735,000.00

ORIGINAL

The OSC has provided the EPA Removal Enforcement Section with information available to pursue any and all enforcement actions pertaining to the Site. A summary of all enforcement activities to date is attached as an addendum to this document.

X. RECOMMENDATION

This decision document represents the selected removal action for the elkton Farms Firehole Site, in Elkton, Cecil County, Maryland developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Condition at the Site meet the criteria for a Removal Action as set forth in Section 300.415 of the NCP, 40 C.F.R. § 300.415, I recommend your approval of the proposed removal action. The total removal action project ceiling if approved will be \$ 4,735,000.00. Of this, an estimated \$2,750,000 comes from the Regional removal allowance.

Approved _____ Date _____

Disapproved _____ Date _____

ATTACHMENT: Confidential Enforcement Addendum